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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,512	10/06/2006	William Ted Masselink	3367-102	6975
6449 7590 08/07/2008 ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005				
EXAMINER HO, ANTHONY				
ART UNIT 2815		PAPER NUMBER		
NOTIFICATION DATE 08/07/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/574,512

Applicant(s)

MASSELINK ET AL.

Examiner

ANTHONY HO

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This is in response to amendment to application no. 10/574,512 filed on June 16, 2008.

Claims 1 and 12-21 are presented for examination.

Claims 2-11 have been cancelled.

Claim Objections

Claims 1, 13-15, 17 and 18 are objected to because of the following informalities:
Any references to certain regions or parts of the device should be deleted. For example, in claim 1, "a first semiconductor region (3)" should be replaced with "a first semiconductor region (3)." In addition, " $\text{Al}_x\text{Ga}_{1-x}\text{P}$ " should be " $\text{Al}_x\text{Ga}_{1-x}\text{P}$ " in claims 1, 14 and 18. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the GaP" in line 14 of claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holonyak, JR. et al (US PUB 2003/0170927) in view of Park et al (US PUB 2002/0031900).

Holonyak, JR et al discloses a semiconductor device for emitting light when a voltage is applied, comprising a first and second semiconductor region of opposite conductivity types (InAlP cladding layers) and also an active semiconductor region made of InGaAlP in between, in which InP quantum dots are embedded (Figure 5 – Figure 8; paragraph 0034 – paragraph 0055; claim 39).

Park et al discloses the use of AlGaP as one of the materials used in a light emitting device (paragraph 0008).

The advantage is to effectively manufacture quantum dots in a semiconductor device without requiring a complex process (paragraph 0006).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the semiconductor device for emitting light as taught by Holonyak, JR et al with the use of AlGaP as one of the materials used in a light emitting device as taught by Park et al in order to effectively manufacture quantum dots in a semiconductor device without requiring a complex process.

Claims 1 and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (US PUB 2002/0136932) in view of Park et al (US PUB 2002/0031900). Yoshida discloses a semiconductor device for emitting light when a voltage is applied, comprising: a first semiconductor region (16), the conductivity of which is based on charge carriers of a first conductivity type, a second semiconductor region (13), the conductivity of which is based on the charge carriers of a second conductivity type, which have an opposite charge to the charge carriers of the first conductivity type, and an active semiconductor region (15) arranged between the first semiconductor region (16) and the second semiconductor region (13), quantum structures (15A) of a semiconductor material with a direct band gap being embedded in said active semiconductor region with the quantum structures are of a lateral extent (Figure 2; paragraph 0043 – paragraph 0129).

Park et al discloses the use of AlGaP as one of the materials used in a light emitting device (paragraph 0008).

The advantage is to effectively manufacture quantum dots in a semiconductor device without requiring a complex process (paragraph 0006).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the semiconductor device for emitting light as taught by Yoshida with the use of AlGaP as one of the materials used in a light emitting device as taught by Park et al in order to effectively manufacture quantum dots in a semiconductor device without requiring a complex process.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Hori et al (US Patent 6,943,366)

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY HO whose telephone number is (571) 270-1432. The examiner can normally be reached on M-Th: 10:30AM-9:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. H./
Examiner, Art Unit 2815

/Kenneth A Parker/
Supervisory Patent Examiner, Art Unit 2815